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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,281

12/31/2003

Hiroiyuki Okuhira

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10/07/2005

RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER

ZIMMER, MARC S

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/748,281

Applicant(s)

OKUHIRA ET AL.

Examiner

Marc S. Zimmer

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,5,6,8,9,12,13,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,9,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 5,6,12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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***Claim Objections***

Claims <sup>16</sup>~~17~~ and <sup>17</sup>~~18~~ are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Insofar as the inhibited activity of the isocyanate groups is merely an inherent outcome of using compounds wherein the isocyanate is bonded to secondary- or tertiary carbon atoms, these claims are not considered to be further limiting.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 5-6, 8-9, 12-13, and 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. At issue are (i) the fact that, once the isocyanate compound is integrated into the polymer structure, the isocyanate groups no longer exist and (ii) the claim, as written, is unclear as to whether or not every -C(O)-NA unit derived from an isocyanate group must be adjacent to a secondary or tertiary atom. In disclosing those isocyanate compounds that are suitable for the preparation of the claimed polyurethanes, the Specification mentions compounds where, for instance, there is one primary isocyanate group and one secondary isocyanate group (that is, they are attached to primary- and secondary carbon atoms

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respectively). It is submitted that Applicant might consider changing the added language to the following:

“wherein the isocyanate compounds from which the silyl group-denatured urethane prepolymer is derived contain at least one isocyanate group bonded to a secondary or tertiary carbon atom except aromatic carbon atom”

It is further submitted that Applicant could more cleanly claim their invention by inserting “aliphatic” before the phrase “secondary or tertiary...” in place of “except aromatic carbon atom”

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8, 9, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Roesler et al., U.S. Patent # 5,919,860. Roesler discloses a silane-functionalized polyurethane dispersion where three different scenarios for combining the materials that make up the dispersion are presented. Relevant to the present discussion, the third approach is one where an alkoxysilane is added to a urethane prepolymer containing free isocyanate groups thereby forming the silane-functional polyurethane. The isocyanate compounds used to prepare the prepolymer are those outlined in column 4, lines 1-27 and include ones wherein at least one of the isocyanate groups is bonded to a secondary- or tertiary carbon atom. To this product is added, in

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turn, polyamine chain extenders. Because the polyamine is not added until after the silane-functional polymer is formed, it represents a second part. See the paragraph bridging columns 2 and 3. A comprehensive description of the polyamine part is provided in paragraph 9, lines 39 through column 10, line 41.

Claims 1, 2, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaa et al., U.S. patent # 4,567,228. Gaa, likewise, teaches aqueous dispersions of silane-functionalized polyurethane. Preferred as the diisocyanate for synthesizing the polymer is methylenebis-(4-cyclohexylisocyanate) which, of course, is of a structure wherein the isocyanate moieties are bonded to secondary carbon atoms (column 8, lines 1-6). According to column 5, lines 32-39, the silylated polyurethane, once formed, can be cured by adding a curing agent to the dispersion. Insofar as the curing agent is not present at the time that the polymer is prepared, this combination of polymer and curing agent represents a two-part composition.

***Allowable Subject Matter***

Claims 5, 6, 12, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are silent concerning the presence of an epoxy resin and it is unclear what would motivate the skilled artisan to add this material to the dispersions taught by the aforementioned documents. As for claims 12 and 13, it is curious that neither reference expressly discloses a condensation catalyst. Further, while the skilled artisan might certainly contemplate its addition to facilitate curing by creation of siloxane bonds from the silane

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moieties, it is not necessarily obvious that it would be introduced with the organic crosslinker/chain extender. Indeed, it may be the case that condensation curing would not be desirable until such time as crosslinking with the polyamine is complete.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 21, 2005

*Marc Zimmer*  
Marc Zimmer  
AU 1712